

WHAT IS CLAIMED IS:

1. An optical drive system, the optical drive system adapted to write data at a substantially linear density on an optical disc, the optical drive system further adapted to set a linear velocity prior to writing to the optical drive to reduce a likelihood of a buffer under-run condition, the optical drive system, comprising:
- 5 a spindle adapted to rotate the optical disc and control a rotational speed of the optical disc;
- an optical pick-up adapted to write data to the optical disc; and
- a controller adapted to communicate with a host device, wherein the
- 10 controller receives a communication link transfer speed between the host device and the controller, and wherein the controller determines a preferred recording speed.
2. The optical drive as defined in Claim 1, wherein the controller receives data to be written to the disc.
- 15 3. The optical drive as defined in Claim 1, wherein the controller communicates with the optical pick-up to transmit the data to the disc.
4. The optical drive as defined in Claim 1, wherein the controller controls the rotational speed of the spindle.
5. The optical drive as defined in Claim 1, further comprising a non-volatile
- 20 memory buffer to store the optical drive maximum recording speed.
6. The optical drive as defined in Claim 1, further comprising a volatile memory buffer, in communication with the controller, to store the preferred recording speed.
7. The optical drive as defined in Claim 1, wherein in response to the preferred
- 25 recording speed slower than the maximum recording speed, the controller sets the rotational speed of the spindle such that the linear velocity of the position on the optical disc adjacent to the optical pick-up is slower than the maximum recording speed.
8. The optical drive as defined in Claim 1, wherein the controller provides the preferred recording speed to the host device.
- 30 9. The optical drive as defined in Claim 8, wherein the host device sets a linear velocity for optical disc recording.

10. The optical drive as defined in Claim 1, wherein the optical disc corresponds to a recordable compact disc format, and wherein the controller controls the linear velocity such that a minimum linear velocity corresponds to a 1X speed.

5 11. The optical drive as defined in Claim 1, wherein the optical disc corresponds to a recordable compact disc format, and wherein the controller controls the linear velocity such that a minimum linear velocity corresponds to a 0.5X speed.

12. The optical drive as defined in Claim 10, wherein the controller maintains the minimum linear velocity limit such that the angular velocity of the spindle does not fall below a preset limit.

10 13. The optical drive as defined in Claim 11, wherein the controller maintains the minimum linear velocity limit such that the angular velocity of the spindle does not fall below a preset limit.

14. A method of writing data to an optical disc, comprising:

15 receiving data to be written to the optical disc from a host device;
storing data to be written to the optical disc in a memory buffer;
writing data from the memory buffer to the optical disc in a continuous
write sequence at a substantially constant linear density;
detecting a communication link transfer speed slower than the optical
drive maximum recording speed; and
20 changing a linear velocity of the optical disc in response to the
communication link transfer speed prior to writing to the optical disc so as to
reduce the likelihood of a buffer under-run.

25 15. The method as defined in Claim 14, further comprising retrieving the optical drive maximum recording speed from a location in non-volatile memory in the optical drive.

16. The method as defined in Claim 15, further comprising determining the preferred recording speed as the slower of (1) the communication link transfer speed between the host device and the controller, and (2) the optical drive maximum recording speed.

30 17. The method as defined in Claim 16, further comprising storing the preferred recording speed in a volatile memory in the optical drive.

18. The method as defined in Claim 17, further comprising the host device retrieving the preferred recording speed from the controller.

19. The method as defined in Claim 18, further comprising the host device commanding the controller to select a linear velocity.

5 20. An optical drive system, the optical drive system adapted to write data on an optical disc and set a linear velocity prior to writing to the optical drive, the optical drive system comprising:

 a control circuit adapted to receive data to be written to the optical disc from a host device;

10 a buffer adapted to store data received by the control circuit;

 a writing circuit adapted to retrieve data from the buffer, wherein the writing circuit writes the data from the buffer as a series of pulses recorded on the optical disc in a continuous write sequence at a substantially constant linear density;

15 a preferred recording speed module adapted to detect a condition of a communication link transfer speed slower than the optical drive maximum recording speed; and

 a writing speed circuit adapted to control a rate at which the writing circuit records to the optical disc, wherein the writing circuit sets a linear velocity of the optical disc in response to the detected condition prior to writing to the optical disc so as to reduce the likelihood of a buffer under-run.

20 21. The optical drive system as defined in Claim 20, wherein the preferred recording speed detection module is a software program which retrieves: (1) a parameter related to a communication link transfer speed between the host device and the optical drive, and (2) a parameter related to an optical drive maximum recording speed.

25 22. The optical drive system as defined in Claim 21, wherein the software program further determines a preferred recording speed.

 23. The optical drive system as defined in Claim 22, wherein the software program further stores the preferred recording speed, and wherein the software program transmits the stored preferred recording speed to the host device.

30

24. An optical drive system adapted to select a preferred optical drive recording speed, the optical drive system comprising:

means for detecting a communication link speed;

means for comparing the communication link speed to an optical drive maximum recording speed; and

means for writing the communication link speed in memory if the communication link speed is less than the optical drive recording speed, otherwise writing the optical drive recording speed in memory.

25. The optical drive system as defined in Claim 24, further comprising a means for returning the preferred optical drive recording speed in memory to a host device.

26. A method of selecting a preferred optical drive recording speed comprising:

detecting a communication link speed;

comparing the communication link speed to an optical drive maximum recording speed;

writing the communication link speed in memory if the communication link speed is less than the optical drive recording speed, otherwise writing the optical drive recording speed in memory.

27. The method as defined in Claim 26, further comprising transmitting the preferred optical drive recording speed to a host device.